

REMARKS

The Office Action mailed May 8, 2001 has been carefully considered by the undersigned attorney and the inventors. The foregoing amendment to this application is presented in response thereto.

In that Office Action, several formal matters were raised and all pending claims (Claims 1-25) were rejected under 35 USC 103 as obvious over various combinations of prior art references.

The formal matters have been corrected by this Amendment. New Figures 3 and 4 are included with this Amendment and four instances where the Examiner had pointed out typographic errors (in paragraph 3 of the Office Action) have been corrected without introducing new matter. A new Abstract of the Disclosure which complies with the 250 word limit is also provided with this Amendment. A copy of the original text showing the original text with the changes marked is attached to this Amendment.

The Office Action rejected all claims as obvious in view of a combination of teachings from a prior art patent 5,343,399 to Yokoyama et al. (the Yokoyama patent) together with a prior art patent 5,422,812 to Knoll et al. (the Knoll patent), either alone (as to Claims 1-6, 11-15 and 19-25) or in combination with a prior art patent to Davis et al. (for Claims 7 and 17), with a prior art patent to Ohmura et al. (for Claims 8-10), and with a prior art patent to Trovato et al. (for Claims 16 and 18).

Reconsideration of these rejections is respectfully requested based on the Remarks. The Yokoyama patent specifically is directed to selectively providing aural notices of driving directions (so as to allow the driver to take the correct route without watching a display, see Col. 1, lines 29-31) and without disturbing the driver. While the Yokoyama reference includes a

display of route guidance in Figs. 2 and 3, the display is specifically indicated as “mounted in the instrument panel near the driver’s seat” (col. 3, lines 34-36) and so that any display will not disturb the driver if the driver does not look at it and that the aural information can be turned off, if desired (see Col. 1, lines 35-40). The display unit 28 is provided with a volume control as a part of the menu screen for the display unit 28 (see Col. 4, lines 55-68). Thus, while the primary teaching of the Yokoyama patent is the selectively control of aural driving instructions, to the extent that it includes any visual indicators of driving instructions, they are to be kept away from the driver’s vision so as not to disturb the driver. This is similar to the center console video screen providing driving instructions as described in the patent application at page 5, lines 11-13.

The Knoll patent teaches that a heads up display in a vehicle may display a stored map with a travel route (Fig. 8) or the current position (Fig. 9) or “speed safe brake operation or traffic information” (Fig. 7).

Since the Yokoyama patent specifically teaches that the display of driving instructions is away from the driver’s vision and the present invention as claimed places driving directions within the driver’s vision, they are fundamentally different and diametrically opposed in concept, function and operation. Further, the combination of the teachings is improper when the one reference specifically teaches to avoid the features of the present invention, namely displaying information like driving directions in view of the driver as the driver is looking out the windshield. Thus, the combination of teachings of Knoll with Yokoyama would contradict the clear teachings of the Yokoyama reference. So, not only is there no reason to combine the references, in this case there is clear teaching to avoid the combinations of references used in rejecting the claims.

The combination of references to make the present rejections may also represent an impermissible hindsight reconstruction -- that is, the selection of bits and pieces from the prior art based on the teachings of applicant's own invention rather on some reason within the references to combine them. Of course, such hindsight reconstruction is improper and there must be not only the individual pieces but also a reason within the references to combine them. Since the teachings of the Yokoyama patent are directed to the selective control of aural information and Knoll is directed to visual display of information, there is little connection between the two references to teach a system which combines visual and auditory display of driving instructions, let alone to include a heads up display of driving directions. Further, since Yokoyama teaches that the display is to be away from the driver's vision and control so the directions do not disturb the driver, it not only teaches away from a windshield-mounted display but it also teaches away from any combination which places a display of driving directions in the driver's sight and therefor can not be combined with the other references.

All claim rejections include the combination of the Yokoyama reference with the Knoll reference, either alone or in combination with other references.

Accordingly, it is urged that all of the claims presented in this patent application differentiate the present invention from the art of record, alone or in combination. New claims are presented which provided a display of a pictorial of the directions, as for example, a live picture from a camera (or even from an overhead satellite or plane) or from a stored picture of an intersection. None of the references, either alone or in combination, teach providing a display based on actual pictures of the intersection (or other driving features).

Accordingly, it is urged that this patent application is in condition for allowance. A notice to that effect is respectfully requested.

If applicants' attorney can assist the Examiner in getting this application in condition for allowance, a collect call to the undersigned is authorized.

If any fee is due for this paper, the Patent Office is authorized to charge Deposit Account 09-0452 in the name of International Business Machines Corporation.

Respectfully submitted,
Howard Operowsky et al.

By: *Kenneth A. Seaman*
Kenneth A. Seaman
Reg. No. 28,113
Attorney for Applicants
IBM Corporation
219 Glen Oaks Road
Charlotte, NC 28270
(704) 365-6363



AMENDED PARAGRAPHS

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Here is a copy of the original paragraphs from the patent application which are amended in this Amendment, showing the changes:

Often directions are provided from maps or from verbal instructions without clear and accurate indications as to how far the desired intersection (e.g., "Main Street" or "Harbor Freeway") is from the present location of his vehicle. Even when an accurate and precise indication of distance is given (e.g., "go 2.7 miles from the origin down Center Street until you intersect Main Street and turn right"), the direction would require that the driver note the initial mileage, calculate the destination mileage of 2.7 miles farther and then observe when the 2.7 miles have passed to find Main Street, an activity which might require frequent calculations and attention to the odometer. Obviously, the driver's looking at the odometer requires the driver to remove his eyes from the road to look at the odometer (instead of the traffic on the road). While a good driver will keep the glances at the odometer to a minimum to allow the greatest attention to be focused on the roadway and its ever[y]-changing perils, this presents a distraction.

Prior art [system] ---systems-- exist where a map is provided are similar to those providing a printed sheet of paper. It has the same disadvantages of not providing any indication when the desired road is being approached and in requiring that the driver's attention is diverted from looking at the road to looking at the map.

The touch screen 5 may serve as an input device to allow the driver to enter a destination, either directly from a map or from a displayed menu of locations. Alternatively, the directions could be sent by wireless means from a transmitter to a wireless receiver located in the vehicle (as described later in connection with Fig. 4) through known technology. If the touch screen 5 includes a menu of destination locations, then the driver may select a destination by touching the touch screen in the respective area, causing the system to identify the destination selected by the driver. Alternatively, the touch screen may include a large-scale map and the driver may select his destination by touching the appropriate area of the map. Once the area has been selected by touching the map or a list of destinations, a more localized map or a more detailed destination list may be presented on the touch screen 5 and a more precise destination selected to allow the destination to be indicated with greater precision. That is, the first menu lists the destinations by category for selection (hotels, office buildings, cities, attractions, etc.) and then when the driver selects a category, a detailed list of destinations within the category is presented for selection. In the presentation of a map, a map showing the main routes and cities within a large scale of 100 miles by 100 miles might be presented, allowing the driver to select a destination region, then a smaller scale (perhaps 10 [mile] -- miles-- by 10 miles) map of the selected destination region would be presented. The process of providing more precise destination information for selection could be continued to other levels, if desired.

If a driver becomes lost or it becomes necessary to establish a new path to a destination -- (for example, because visual clues have become obsolete or a road has been temporarily closed), the present invention can be used to advantage as follows: the GPS system 95 identifies the current position of the vehicle and driver. A new path to the destination is established using

an alternate path. While such an alternate path may also become obsolete or have a detour also), the process may be repeated as necessary until a usable route is found.

A system and method of providing information (such as directions) to a driver of a vehicle [with the capability of presenting such information] while [the driver is] driving the [car and] - - vehicle -- without requiring that the driver remove his eyes from looking out the windshield at the road ahead. A positioning device is associated with the vehicle and determines the present location of the vehicle [. The present location of the vehicle] --which-- is compared with a desired location (e.g., the location of a desired turn at an intersection) necessary to reach a preset destination which has been stored in [an on-board memory]. When the vehicle is in a predetermined location (e.g., 500 feet or 10 second before the intersection), an advisory message is provided to the driver by projecting the message on the windshield using a heads-up display projector so that the driver can prepare for and make the necessary movement (e.g., turning the correct way at the desired intersection). An optional auditory signal can [be provided to give the driver an additional] --provide a-- message indicating the necessary action, either in general [(“look at windshield for action” or a bell or chime)] or specifically [indicate the necessary action] - (- through [the use of] a speech synthesizer [which provides an audible instruction (such as “turn right at Main”)], with optionally different sound indicators depending on the urgency of the action. A wireless receiver [can be] used with [the processing unit and projector display of] the present invention [for displaying on the windshield] - -can display-- other information such as road conditions, traffic and weather information, as well as advertising and e-mail. The present invention contemplates that images of intersections may be displayed to

indicate the proper turn and provide landmark information to assist in determining the appropriate turn.